

=> fil reg
 FILE 'REGISTRY' ENTERED AT 12:30:40 ON 28 MAY 2008
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
 COPYRIGHT (C) 2008 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
 provided by InfoChem.

STRUCTURE FILE UPDATES: 27 MAY 2008 HIGHEST RN 1023132-78-6
 DICTIONARY FILE UPDATES: 27 MAY 2008 HIGHEST RN 1023132-78-6

New CAS Information Use Policies, enter HELP USAGETERMS for details.

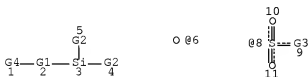
TSCA INFORMATION NOW CURRENT THROUGH January 9, 2008.

Please note that search-term pricing does apply when
 conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
 predicted properties as well as tags indicating availability of
 experimental property data in the original document. For information
 on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=> d sta que l34
 L25 7960 SEA FILE=REGISTRY ABB=ON PLU=ON (SI AND S)/ELS AND PMS/CI
 L29 STR



VAR G1=AK/ID
 VAR G2=6/X
 VAR G3=O/X
 VAR G4=SH/8
 NODE ATTRIBUTES:
 CONNECT IS M1 RC AT 3
 CONNECT IS M1 RC AT 6
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE
 L34 1331 SEA FILE=REGISTRY SUB=L25 CSS FUL L29

100.0% PROCESSED 6510 ITERATIONS
 SEARCH TIME: 00.00.01

1331 ANSWERS

=> fil hcaplus
 FILE 'HCAPLUS' ENTERED AT 12:30:50 ON 28 MAY 2008
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
 COPYRIGHT (C) 2008 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 28 May 2008 VOL 148 ISS 22
 FILE LAST UPDATED: 27 May 2008 (20080527/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d bib abs hitind hitstr retable tot 182

L82 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2005:060350 HCAPLUS Full-text
 DN 143:118637

TI Polysiloxane electrolytes for fuel cell electrodes
 IN Takami, Masanobu; Fujinami, Tatsuo
 PA Toyota Motor Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005190813	A	20050714	JP 2003-430515	20031225 <--
PRAI	JP 2003-430515		20031225	<--	

AB The electrolytes are polysiloxanes having ≤ 2 Si-O bonds as connecting groups in the main skeleton. The electrolytes show satisfactory gas- and water vapor permeability, heat resistance, and chemical stability. Thus, n-Hexyltrimethoxysilane-(3-mercaptopropyl)trimethoxysilane copolymer was prepared and oxidized to give SO₃H groups. The resultant silsesquioxanes shows high ionic conductivity

IC ICM H01M0008-02

ICS H01B0001-06; H01M0008-10

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38

IT Fuel cell electrodes

(polysiloxane electrolytes for fuel cell electrodes)

IT 957443-48-2DP, oxidized

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(polysiloxane electrolytes for fuel cell electrodes)

IT 357843-48-2DP, oxidized

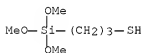
RL: DEV (Device component use); IMF (Industrial manufacture); PREP

(Preparation); USES (Uses)
(polysiloxane electrolytes for fuel cell electrodes)

RN 857843-48-2 HCAPLUS
CN 1-Propanethiol, 3-(trimethoxysilyl)-, polymer with hexyltrimethoxysilane
(9CI) (CA INDEX NAME)

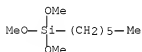
CM 1

CRN 4420-74-0
CMF C6 H16 O3 S Si



CM 2

CRN 3069-19-0
CMF C9 H22 O3 Si



L82 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2005:158336 HCAPLUS [Full-text](#)

DN 142:222657

TI Proton conductive membrane, its manufacture,
and fuel cell thereof

IN Miyama, Toshihito; Nomura, Shigeki

PA Sekisui Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 30 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005050700	A	20050224	JP 2003-282006	20030729 <--
PRAI	JP 2003-282006		20030729 <--		

AB The membrane has a crosslinked structure containing acid groups and metal-O bonding and is loaded with metal catalyst particles near the acid groups. The crosslinked structure contains $\text{XnSi(R}_2\text{)}_3\text{-nR}_1\text{SO}_3\text{H}$ (X = crosslinking related -O- bonding or OH group, $\text{R}_1 = \text{C}\leq 20$ hydrocarbon group, $\text{R}_2 = \text{Me, Et, C}_3\text{H}_7$, or C_6H_5 , $n = 1-3$, and the 2 R_2 may be different when $n = 1$), $\text{SiXm(R}_3\text{)}_4\text{-m}$ ($\text{R}_3 = \text{C}\leq 20$ alkyl group, $m = 2-4$), or $\text{R}_4\text{SiX}_3\text{-1R}_5\text{Si(R}_4\text{)}_3\text{-1}$ ($\text{R}_4 = \text{Me, Et, C}_3\text{H}_7$, C_4H_9 , or C_6H_5 ; $\text{R}_5 = \text{C}_1\text{-30 C containing mol. chain, } l = 0-2$). The membrane is manufactured by preparing the crosslinked structure, replacing the H^+ in the

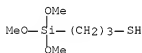
acid groups with a metal cation, and reducing the cation to deposit metal particles.

- IC ICM H01M0008-62
ICS C08J0005-22; H01B0001-06; H01B0013-00;
H01M0008-10; H01M0008-04; C08L0085-00
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST fuel cell catalytic metal proton conductive
membrane compn manuf
- IT Fuel cell electrolytes
(compsn. and manufacture of proton conductive
crosslinked electrolyte membranes containing metal catalyst
particles for fuel cells)
- IT 7440-06-4, Platinum, uses
RL: CAT (Catalyst use); DEV (Device component use); PEP (Physical,
engineering or chemical process); PYP (Physical process); PROC (Process);
USES (Uses)
(compsn. and manufacture of proton conductive
crosslinked electrolyte membranes containing metal catalyst
particles for fuel cells)
- IT 161000-64-2DP, 3-Mercaptopropyltrimethoxysilane-tetraethoxysilane
copolymer, crosslinked, oxidized
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(compsn. and manufacture of proton conductive
crosslinked electrolyte membranes containing metal catalyst
particles for fuel cells)
- IT 161000-64-2DP, 3-Mercaptopropyltrimethoxysilane-tetraethoxysilane
copolymer, crosslinked, oxidized
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(compsn. and manufacture of proton conductive
crosslinked electrolyte membranes containing metal catalyst
particles for fuel cells)
- RN 161000-64-2 HCAPLUS
- CN Silicic acid (H4SiO4), tetraethyl ester, polymer with 3-(trimethoxysilyl)-
1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si



L82 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2005:75850 HCAPLUS Full-text

DN 142:159545

TI Manufacture of electrodes for fuel cells with high catalytic efficiency, and good durability and dimensional stability

IN Miyama, Toshihito; Nomura, Shigeki

PA Sekisui Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 31 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005026005	A	20050127	JP 2003-188386	20030630 <--
PRAI	JP 2003-188386		20030630	<--	

AB The electrodes consist of electroconductive porous materials, crosslinked structures having acid group-containing metal-O linkages in contact with the porous materials, and metal particles precipitated near the acid groups. The electrodes are manufactured by mixing the electroconductive porous materials with the crosslinked structures, substitution of proton in the acid groups with cations containing metal catalyst ions, and reducing the metal ions for precipitation of metal particles in the crosslinked structures. The electrodes show improved heat resistance.

IC ICM H01M0004-86

ICS H01M0004-88; H01M0008-10

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

IT 161000-64-2DP, oxidized

RL: CPS (Chemical process); DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses)

(manufacture of electrodes by precipitation of metal particles for fuel

cells)

IT 161000-64-2DP, oxidized

RL: CPS (Chemical process); DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses)

(manufacture of electrodes by precipitation of metal particles for fuel

cells)

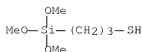
RN 161000-64-2 HCAPLUS

CN Silicic acid (H4SiO4), tetraethyl ester, polymer with 3-(trimethoxysilyl)-1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si



L82 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2004:1127708 HCAPLUS Full-text

DN 142:59770

TI Proton conductive film, its manufacture, and
fuel cell thereof

IN Nomura, Shigeki; Miyama, Toshihito

PA Sakisui Chemical Co., Ltd., Japan

SO PCT Int. Appl., 61 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004112177	A1	20041223	WO 2004-JP8487	20040610 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MN, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2525233	A1	20041223	CA 2004-2525233	20040610 <--
	EP 1635413	A1	20060315	EP 2004-746015	20040610 <--
	R: DE, FR, GB, IT				
	CN 1806357	A	20060719	CN 2004-80016476	20040610 <--
	JP 3875256	B2	20070131	JP 2005-506993	20040610 <--
	TW 259600	B	20060801	TW 2004-93116842	20040611 <--
	US 20060141313	A1	20060629	US 2005-559082	20051202 <--
	KR 754095	B1	20070831	KR 2005-723806	20051212 <--
PRAI	JP 2003-169848	A	20030613	<--	
	WO 2004-JP8487	W	20040610		

- AB A heat resistant H+ conductive film, having high dimensional stability and good high temperature H+ conductivity, is a continuous body of particles, which have metal-oxygen bond crosslinking structure, acid groups on their surface, and H+ passaged in the void among the particles. The particles acid group containing structure $XnSi(R2)3-xR1SO13H$, where X = crosslink related -O- or OH group; $R1 = C\leq 20$ hydrocarbon group; $R2 = Me, Et, Pr, C6H5$; $n = 1-3$, and R2 may differ from each other when $n \geq 2$. The film is manufactured by preparing a mixture of a compound, having mercapto group and mercapto group reactive hydrolyzable condensable silyl group and/or silanol group, and a polarization control agent; applying the mixture on a substrate to form a membrane, hydrolyzing and condensing the compound; and oxidizing the mercapto groups to form sulfonic acid groups.
- IC ICM B01M0003-02
ICS B01B0001-06; B01B0013-00; C08J6005-22; C08L0101-00
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST fuel cell metal oxygen crosslinked polysiloxane electrolyte membrane manuf; proton conductive crosslinked polysiloxane membrane fuel cell electrolyte
- IT Fuel cell electrolytes
(catalyst in manuf proton conductive crosslinked siloxane particle films for fuel cell electrolytes)
- IT Polyoxymethylenes, uses
RL: NUU (Other use, unclassified); USES (Uses)
(polarization control agents in manuf proton conductive crosslinked siloxane particle films for fuel cell electrolytes)
- IT 75-59-2, Tetramethylammonium hydroxide 110-86-1, Pyridine, uses 121-44-8, Triethylamine, uses 7664-41-7, Ammonia, uses 7789-23-3, Potassium fluoride
RL: CAT (Catalyst use); USES (Uses)
(catalyst in manuf proton conductive crosslinked siloxane particle films for fuel cell electrolytes)
- IT 56-81-5, Glycerin, uses 111-46-6, Diethylene glycol, uses 25322-68-3, Poly(ethylene glycol)
RL: NUU (Other use, unclassified); USES (Uses)
(polarization control agents in manuf proton conductive crosslinked siloxane particle films for fuel cell electrolytes)
- IT 141098-23-9DP, oxidized 161000-64-2DP, 3-Mercaptopropyltrimethoxysilane-tetraethoxysilane copolymer, oxidized 438245-54-6P 809281-44-5DP, oxidized
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(proton conductive films from sulfonic acid group containing crosslinked siloxane particles for fuel cell electrolytes)
- IT 161000-64-2D, X 41-1805, oxidized
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(proton conductive films from sulfonic acid group containing crosslinked siloxane particles for fuel cell electrolytes)
- IT 141098-23-9DP, oxidized 161000-64-2DP, 3-Mercaptopropyltrimethoxysilane-tetraethoxysilane copolymer, oxidized 438245-54-6P 809281-44-5DP, oxidized
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(proton conductive films from sulfonic acid group containing crosslinked siloxane particles for fuel cell

electrolytes)

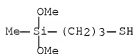
RN 141098-23-9 HCAPLUS

CN Silicic acid (H4SiO4), tetraethyl ester, polymer with 3-(dimethoxymethylsilyl)-1-propanethiol (9CI) (CA INDEX NAME)

CM 1

CRN 31001-77-1

CMF C6 H16 O2 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si



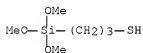
RN 161000-64-2 HCAPLUS

CN Silicic acid (H4SiO4), tetraethyl ester, polymer with 3-(trimethoxysilyl)-1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si

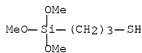


RN 438245-54-6 HCAPLUS
 CN Silicic acid (H₄SiO₄), tetraethyl ester, polymer with triethoxymethylsilane and 3-(trimethoxysilyl)-1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



CM 2

CRN 2031-67-6

CMF C7 H18 O3 Si



CM 3

CRN 78-10-4

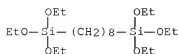
CMF C8 H20 O4 Si



RN 809281-44-5 HCAPLUS
 CN Silicic acid (H₄SiO₄), tetramethyl ester, polymer with 4,4,13,13-tetraethoxy-3,14-dioxo-4,13-disilahehexadecane and 3-(trimethoxysilyl)-1-propanethiol (9CI) (CA INDEX NAME)

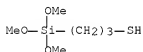
CM 1

CRN 52217-60-4
CMF C20 H46 O6 Si2



CM 2

CRN 4420-74-0
CMF C6 H16 O3 S Si



CM 3

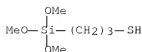
CRN 681-84-5
CMF C4 H12 O4 Si



IT 161000-64-2D, X 41-1805, oxidized
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(proton conductive films from sulfonic acid group containing crosslinked siloxane particles for fuel cell electrolytes)
RN 161000-64-2 HCAPLUS
CN Silicic acid (H4SiO4), tetraethyl ester, polymer with 3-(trimethoxysilyl)-1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0
CMF C6 H16 O3 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si



RETABLE

Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RWK)	Referenced File
(RPY) (RVL) (RPG)					
Fuji Electric Co Ltd	1994			JP 06-394 A	HCAPLUS
Sekisui Chemical Co Ltd	2003			JP 2003331644 A	HCAPLUS
Toyota Central Research	2001			JP 200111219 A	
Toyota Central Research	2002			WO 0237506 A1	HCAPLUS

L82 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2004:1058521 HCAPLUS [Full-text](#)

DN 142:39543

TI Sulfonic acid-containing polysiloxanes with good ion conductivity
for proton conductive materials and fuel cells

IN Tezuka, Makoto; Harada, Takashi; Mori, Hiroshi; Tanaka, Seichiro

PA Mitsubishi Chemical Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	JP 2004346316	A	20041209	JP 2004-134163	20040428 <--
PRAI	JP 2003-124903	A	20030430	<--	

AB The present invention relates to polysiloxanes with sulfonic acid content ≥ 2 mmol/g. Thus, 37 parts 3-mercaptopropyltrimethoxysilane was dissolved in 63 parts ethanol, 10 parts water was added therein and stirred at 70° for 3 h, 75 parts 30% hydrogen peroxide was added therein and stirred at 70° for 60 h to give a sulfonic acid-containing compound, which was applied on a fluoropolymer film, dried, treated with a salt solution, and neutralized sodium hydroxide to give a test piece with proton conductivity 2.4×10^{-2} S/cm at 140° and 8.2×10^{-3} S/cm at 100°.

IC ICM C08G0077-28

ICS C08L0083-08; H01B0001-06; H01M0008-02

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 52

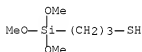
ST sulfonic acid polysiloxanes proton ion conductive

- material fuel cell; sodium sulfonate contg silsesquioxane prepn
- IT Ionic conductors
(protonic; sulfonate-containing polysiloxanes with good ion conductivity for proton conductive materials and fuel cells)
- IT Silsesquioxanes
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(sodium sulfonated; sulfonate-containing polysiloxanes with good ion conductivity for proton conductive materials and fuel cells)
- IT Fuel cell electrolytes
Fuel cells
(sulfonate-containing polysiloxanes with good ion conductivity for proton conductive materials and fuel cells)
- IT Polysiloxanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sulfonated; sulfonate-containing polysiloxanes with good ion cond . for proton conductive materials and fuel cells)
- IT 29295-80-5DP, 3-Mercaptopropyltrimethoxysilane homopolymer, sodium sulfonated 167427-18-IDP, sodium sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(sulfonate-containing polysiloxanes with good ion conductivity for proton conductive materials and fuel cells)
- IT 29295-80-5DP, 3-Mercaptopropyltrimethoxysilane homopolymer, sodium sulfonated 167427-18-IDP, sodium sulfonated
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(sulfonate-containing polysiloxanes with good ion conductivity for proton conductive materials and fuel cells)
- RN 29295-80-5 HCAPLUS
- CN 1-Propanethiol, 3-(trimethoxysilyl)-, homopolymer (CA INDEX NAME)

CM 1

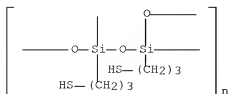
CRN 4420-74-0

CMF C6 H16 O3 S Si



RN 167427-18-1 HCAPLUS

CN Poly[[1,3-bis(3-mercaptopropyl)-1,3:1,3-disiloxanediylidene]-1,3-bis(oxy)]
(CA INDEX NAME)



L82 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN
 AN 2004:965518 HCAPLUS Full-text
 DN 141:413617
 TI Proton conductive film, its manufacture, and
 fuel cell using the film
 IN Miyama, Toshihito; Sugimoto, Toshiya; Nomura, Shigeki
 PA Sekisui Chemical Co., Ltd., Japan
 SO PCT Int. Appl., 82 pp.
 CODEN: PIXXD2
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004097850	A1	20041111	WO 2004-JP5885	20040423 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2520827	A1	20041111	CA 2004-2520827	20040423 <--
	EP 1619692	A1	20060125	EP 2004-729222	20040423 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
	TW 251368	B	20060311	TW 2004-93111399	20040423 <--
	CN 1781162	A	20060531	CN 2004-80011145	20040423 <--
	US 20060219981	A1	20061005	US 2005-554222	20051024 <--
PRAI	JP 2003-122766	A	20030425	<--	
	JP 2004-9471	A	20040116	<--	
	WO 2004-JP5885	W	20040423		
AB	A proton-conductive film which is excellent in heat resistance, durability, dimensional stability, fuel-barrier properties, flexibility, etc. and has excellent proton conductivity even at high temps.; a process for producing the film; and a fuel cell which can stably work at high temps. The proton-conductive film comprises; base comprising an organic/inorg.composite structure (α) which has a crosslinked structure formed through metal oxygen bonds and has an interconnecting pore structure in which press formed inside by the crosslinked structure are interconnected; and a proton- conductive structure (β) comprising an acid-containing structure having an acid group, the pores of the base being filled with the structure (β). A fuel cell with excellent performances can be obtained by suing the proton-conductive film .				
IC	ICM H01B0001-06				
	ICS H01H0003-02; H01M0008-10				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
	Section cross-reference(s): 38				
ST	fuel cell proton conductive bridged inorg org				
	film manuf; silicon bridged org proton				
	conductive film fuel cell				
IT	Fuel cells				
	(PEFC; composite proton conductive inorg.-organic				

films for fuel cells)

IT Fuel cell electrolytes
(composite proton conductive inorg.-organic
films for fuel cells)

IT 154619-15-5P 161000-64-2P 273735-07-2P
770733-64-7P 792931-71-6P 792931-72-7P 792931-73-8P
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation)
(composite proton conductive inorg.-organic
films for fuel cells)

IT 154619-15-5P 161000-64-2P 273735-07-2P
792931-71-6P 792931-72-7P
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation)
(composite proton conductive inorg.-organic
films for fuel cells)

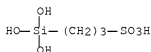
RN 154619-15-5 HCAPLUS

CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)-, polymer with silicic acid
(H4SiO4) tetraethyl ester (CA INDEX NAME)

CM 1

CRN 70942-24-4

CMF C3 H10 O6 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si



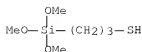
RN 161000-64-2 HCAPLUS

CN Silicic acid (H4SiO4), tetraethyl ester, polymer with 3-(trimethoxysilyl)-
1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si



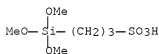
RN 273735-07-2 HCAPLUS

CN 1-Propanesulfonic acid, 3-(trimethoxysilyl)-, polymer with silicic acid (H4SiO4) tetraethyl ester (9CI) (CA INDEX NAME)

CM 1

CRN 79059-66-8

CMF C6 H16 O6 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si

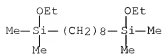


RN 792931-71-6 HCAPLUS

CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)-, polymer with 4,4,13,13-tetramethyl-3,14-dioxa-4,13-disilahexadecane (9CI) (CA INDEX NAME)

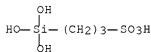
CM 1

CRN 524729-76-8
CMF C16 H38 O2 Si2



CM 2

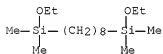
CRN 70942-24-4
CMF C3 H10 O6 S Si



RN 792931-72-7 HCAPLUS
CN 1-Propanethiol, 3-(trimethoxysilyl)-, polymer with 4,4,13,13-tetramethyl-3,14-dioxo-4,13-disilahexadecane (9CI) (CA INDEX NAME)

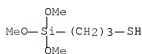
CM 1

CRN 524729-76-8
CMF C16 H38 O2 Si2



CM 2

CRN 4420-74-0
CMF C6 H16 O3 S Si



RETABLE

Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RWK)	Referenced File
	(RPY)	(RVL)	(RPG)		

Agency Of Industrial Sci	2001		JP 200135509 A	
Creavis Gesellschaft Fu	2002		WO 0247801 A1	HCAPLUS
Creavis Gesellschaft Fu	2002		DE 10061920 A1	HCAPLUS
Creavis Gesellschaft Fu	2002		US 20040028913 A1	HCAPLUS
Creavis Gesellschaft Fu	2002		JP 2004515896 A	
Dais Corp	1998		JP 10-503788 A	
Dais Corp	1998		US 5468574 A	HCAPLUS
Dais Corp	1998		WO 9532236 A1	HCAPLUS
National Institute Of A	2002		JP 2002309016 A	HCAPLUS

L82 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2004:678446 HCAPLUS Full-text

DN 141:210057

TI Proton conducting film, method for producing
the same, and fuel cell using the same

IN Momura, Shigeki; Yamauchi, Kenji; Koma,
Satoshi; Sugimoto, Toshiya; Hasegawa, Taira
PA Sekisui Chemical Co., Ltd., Japan

SO PCT Int. Appl., 89 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004070738	A1	20040819	WO 2004-JP1179	20040205 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NI, RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2515494	A1	20040819	CA 2004-2515494	20040205 <--
	EP 1592025	A1	20051102	EP 2004-708465	20040205 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	CN 1748265	A	20060315	CN 2004-80003726	20040205 <--
	TW 269478	B	20061221	TW 2004-93102600	20040205 <--
	US 20060035129	A1	20060216	US 2005-540564	20050624 <--
FRAI	JP 2003-30000	A	20030206	<--	
	JP 2003-122759	A	20030425	<--	
	WO 2004-JP1179	W	20040205	<--	

AB A method for producing a proton conducting film which has a crosslinking structure with silicon-oxygen covalent bonds and has, in the film, a crosslinking structure containing a sulfonic acid group, represented by the following formula: (1), characterized in that it comprises a first step of preparing a mixture comprising a mercapto group containing oligomer (A) which contains a plurality of mercapto groups and has a reactive group capable of forming an Si-O-Si bonding through a condensation reaction, a second step of shaping said mixture into a film form, a third step of effecting the condensation reaction of the mixture in a film form in the presence of a catalyst, to form a crosslinked gel, and a forth step of converting the mercapto group in the film to a sulfonic acid group by oxidation; a proton conducting film produced by the method; and a solid polymer type fuel cell using the proton conducting film. The proton conducting film exhibits high ion conductivity, is excellent in dimensional stability at a high temperature, and is capable of functioning with stability even at a high temperature

IC ICM H01B00013-00
ICS H01B0001-06; H01MG008-02; C08G0077-28

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 38, 67

ST proton conductive film fuel cell amine
catalyst

IT Fuel cells
(proton conducting film for fuel cell)

IT 78-81-9, Isobutylamine 100-37-8, Diethylethanolamine 102-71-6,
Triethanolamine, uses 109-89-7, Diethylamine, uses 110-89-4,
Piperidine, uses 121-44-8, Triethylamine, uses 142-84-7, Dipropylamine
RL: CAT (Catalyst use); USES (Uses)
(catalyst; proton conducting film for
fuel cell)

IT 29295-80-5P, 3-Mercaptopropyltrimethoxysilane homopolymer
113923-91-4P 141098-23-9P 161000-64-2P,
X-41-1805 161000-64-2P, 3-Mercaptopropyltrimethoxysilane-
tetraethoxysilane copolymer 352211-30-4P,
Mercaptomethyltrimethoxysilane-tetraethoxysilane copolymer
438245-54-6P 742079-37-4P 742079-38-5P
742079-40-9P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(proton conducting film for fuel cell)

IT 29295-80-5P, 3-Mercaptopropyltrimethoxysilane homopolymer
113923-91-4P 141098-23-9P 161000-64-2P,
X-41-1805 352211-30-4P, Mercaptomethyltrimethoxysilane-
tetraethoxysilane copolymer 438245-54-6P 742079-37-4P
742079-38-5P 742079-40-9P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(proton conducting film for fuel cell)

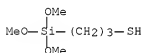
RN 29295-80-5 HCAPLUS

CN 1-Propanethiol, 3-(trimethoxysilyl)-, homopolymer (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



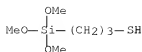
RN 113923-91-4 HCAPLUS

CN Silicic acid (H4SiO4), tetramethyl ester, polymer with
3-(trimethoxysilyl)-1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



CM 2

CRN 681-84-5

CMF C4 H12 O4 Si



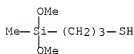
RN 141098-23-9 HCAPLUS

CN Silicic acid (H₄SiO₄), tetraethyl ester, polymer with 3-(dimethoxymethylsilyl)-1-propanethiol (9CI) (CA INDEX NAME)

CM 1

CRN 31001-77-1

CMF C6 H16 O2 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si



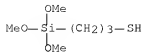
RN 161000-64-2 HCAPLUS

CN Silicic acid (H₄SiO₄), tetraethyl ester, polymer with 3-(trimethoxysilyl)-1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si



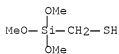
RN 352211-30-4 HCAPLUS

CN Silicic acid (H₄SiO₄), tetraethyl ester, polymer with (trimethoxysilyl)methanethiol (9CI) (CA INDEX NAME)

CM 1

CRN 30817-94-8

CMF C4 H12 O3 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si



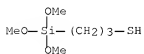
RN 438245-54-6 HCAPLUS

CN Silicic acid (H₄SiO₄), tetraethyl ester, polymer with triethoxymethylsilane and 3-(trimethoxysilyl)-1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



CM 2

CRN 2031-67-6

CMF C7 H18 O3 Si



CM 3

CRN 78-10-4

CMF C8 H20 O4 Si



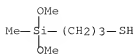
RN 742079-37-4 HCAPLUS

CN 1-Propanethiol, 3-(dimethoxymethylsilyl)-, polymer with triethoxymethylsilane (9CI) (CA INDEX NAME)

CM 1

CRN 31001-77-1

CMF C6 H16 O2 S Si



CM 2

CRN 2031-67-6

CMF C7 H18 O3 Si



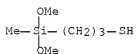
RN 742079-38-5 HCAPLUS

CN 1-Propanethiol, 3-(dimethoxymethylsilyl)-, polymer with triethoxyoctylsilane (9CI) (CA INDEX NAME)

CM 1

CRN 31001-77-1

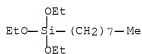
CMF C6 H16 O2 S Si



CM 2

CRN 2943-75-1

CMF C14 H32 O3 Si



RN 742079-40-9 HCAPLUS

CN 1-Propanethiol, 3-(trimethoxysilyl)-, polymer with diethoxydiethylsilane (9CI) (CA INDEX NAME)

CM 1

CRN 5021-93-2

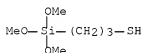
CMF C8 H20 O2 Si



CM 2

CRN 4420-74-0

CMF C6 H16 O3 S Si



L82 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2004:291271 HCAPLUS Full-text

DN 140:305060

TI Organic-inorganic hybrid polyorganosiloxane materials for ion-conducting membranes

IN Kawabe, Kazuhiro; Kikugawa, Takashi; Kuraoka, Koji; Yazawa, Tetsuo

PA Yamamura Glass Co., Ltd., Japan; National Institute of Advanced Industrial Science and Technology

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004107597	A	20040408	JP 2002-275822	20020920 <--
PRAI	JP 2002-275822		20020920	<--	
OS	MARPAT 140:305060				

AB The materials are manufactured by hydrolysis and polycondensation of $\text{R}_1\text{mSi}(\text{OR}_2)_4-\text{m}$ ($\text{R}_1, \text{R}_2 = \text{C}_1-3$ alkyl; $\text{m} = 0-2$) with water, [addition of $\text{PhnSi}(\text{OR}_3)_4-\text{n}$ ($\text{R}_3 = \text{C}_1-3$ alkyl; $\text{n} = 1, 2$)], addition of $\text{HSXSi}(\text{OR}_4)_p\text{R}_5-\text{p}$ ($\text{X} = \text{C}_1-5$ alkylene; $\text{R}_4, \text{R}_5 = \text{C}_1-3$ alkyl; $\text{p} = 2, 3$) and water, drying the resulting sol solns., and oxidation of the SH groups of the resulting solids to SO_3H groups. Thus, a reaction product of tetraethoxysilane 89, phenyltriethoxysilane 38, and γ -mercaptopropyltrimethoxysilane 38 parts was cast into a membrane, which was immersed in 15% aqueous H_2O_2 solution and washed with water to give an ion-conductive membrane with elec. conductivity (at 25°, relative humidity 60%, 1000 Hz) $\geq 10^{-5}$ S/cm.

IC ICM C08G0077-28
ICS C08G0077-392; H01B0001-06; H01M0006-18;
H01M0010-40

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76

IT 161000-64-2P, γ -Mercaptopropyltrimethoxysilane-tetraethoxysilane copolymer 676552-35-5P, γ -Mercaptopropyltrimethoxysilane-phenyltriethoxysilane-tetraethoxysilane copolymer

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(organic-inorg. hybrid polyorganosiloxane materials for ion-conducting membranes)

IT 161000-64-2DP, γ -Mercaptopropyltrimethoxysilane-tetraethoxysilane copolymer, oxidized 676552-35-5DP, oxidized
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(organic-inorg. hybrid polyorganosiloxane materials for ion-conducting membranes)

IT 161000-64-2P, γ -Mercaptopropyltrimethoxysilane-tetraethoxysilane copolymer

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(organic-inorg. hybrid polyorganosiloxane materials for ion-conducting membranes)

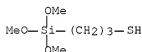
RN 161000-64-2 HCAPLUS

CN Silicic acid (H4SiO4), tetraethyl ester, polymer with 3-(trimethoxysilyl)-1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si



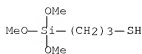
IT 161000-64-2DP, γ -Mercaptopropyltrimethoxysilane-tetraethoxysilane copolymer, oxidized
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(organic-inorg. hybrid polyorganosiloxane materials for ion-conducting membranes)

RN 161000-64-2 HCAPLUS

CN Silicic acid (H4SiO4), tetraethyl ester, polymer with 3-(trimethoxysilyl)-1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0
CMF C6 H16 O3 S Si



CM 2
CRN 78-10-4
CMF C8 H20 O4 Si



L82 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2003:910299 HCAPLUS Full-text

DN 139:397957

TI Manufacture of heat-resistant proton-conducting
films for fuel cells usable at high temperature

IN Nomura, Shigeki; Sugimoto, Toshiya; Nakamura, Masanori

PA Sekisui Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	JP 2003331644	A	20031121	JP 2002-134015	20020509 <--
PRAI	JP 2002-134015		20020509	<--	

AB The films, comprising structures crosslinked via ≥ 1 linkages chosen from S, SO, and SO₂, are manufactured by mixing mercaptanes with unsatd. compds., forming the mixts. into films, crosslinking upon addition reaction, and optionally oxidizing unreacted SH groups. Preferably, the mercaptanes and/or the unsatd. compds. are polysiloxanes. The films show high proton conductivity at high temps., e.g., $\geq 100^\circ$.

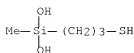
IC ICM H01B0001-06

ICS C08G0075-02; C08G0081-00; C08G0085-00; C09J0005-22;
H01B0013-00; H01M0008-02; H01M0008-10;
C08G0077-44; C08L0083-10

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 39, 76

ST sulfide crosslinked polysiloxane proton conductor fuel
cell; sulfoxide crosslinked polysiloxane proton
conductor fuel cell; sulfone crosslinked polysiloxane
proton conductor fuel cell; fuel cell electrolyte
vulcanized silicone rubber sulfonic acid

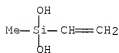
- IT Polysiloxanes, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (crosslinked; manufacture of heat-resistant proton-conducting films comprising polysiloxanes crosslinked via sulfide, sulfone, sulfoxide linkages for fuel cell electrolytes)
- IT Fuel cell electrolytes
 Fuel cells
 Polymer electrolytes
 (manufacture of heat-resistant proton-conducting films comprising polysiloxanes crosslinked via sulfide, sulfone, sulfoxide linkages for fuel cell electrolytes)
- IT Ionic conductors
 (polymeric, protonic; manufacture of heat-resistant proton-conducting films comprising polysiloxanes crosslinked via sulfide, sulfone, sulfoxide linkages for fuel cell electrolytes)
- IT Silicone rubber, uses
 RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (vulcanized, sulfonic acid group-containing; manufacture of heat-resistant proton-conducting films comprising polysiloxanes crosslinked via sulfide, sulfone, sulfoxide linkages for fuel cell electrolytes)
- IT 625418-38-4DP, trimethylsilyl-terminated and oxidized
 RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (assumed monomers, rubber; manufacture of heat-resistant proton-conducting films comprising polysiloxanes crosslinked via sulfide, sulfone, sulfoxide linkages for fuel cell electrolytes)
- IT 625418-36-2DP, trimethylsilyl-terminated and oxidized
 625418-39-5DP, trimethylsilyl-terminated and oxidized
 625418-40-8DP, trimethylsilyl-terminated and oxidized
 RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (comprised of actual and assumed monomers, rubber; manufacture of heat-resistant proton-conducting films comprising polysiloxanes crosslinked via sulfide, sulfone, sulfoxide linkages for fuel cell electrolytes)
- IT 625418-38-4DP, trimethylsilyl-terminated and oxidized
 RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (assumed monomers, rubber; manufacture of heat-resistant proton-conducting films comprising polysiloxanes crosslinked via sulfide, sulfone, sulfoxide linkages for fuel cell electrolytes)
- RN 625418-38-4 HCAPLUS
- CN Silanediol, ethenylmethyl-, polymer with (3-mercaptopropyl)methylsilanedio 1 (9CI) (CA INDEX NAME)
- CM 1
- CRN 156730-90-4
- CMF C4 H12 O2 S Si



CM 2

CRN 3959-12-4

CMF C3 H8 O2 Si



IT 625418-39-SDP, trimethylsilyl-terminated and oxidized
 RL: DEV (Device component use); IMF (Industrial manufacture); TEM
 (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (comprised of actual and assumed monomers, rubber; manufacture of
 heat-resistant proton-conducting films
 comprising polysiloxanes crosslinked via sulfide, sulfone, sulfoxide
 linkages for fuel cell electrolytes)

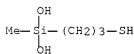
RN 625418-39-5 HCAPLUS

CN Silanediol, (3-mercaptopropyl)methyl-, polymer with α -
 (ethenyldimethylsilyl)- ω -[(ethenyldimethylsilyl)oxy]poly[oxy(dimethyl
 silylene)] (9CI) (CA INDEX NAME)

CM 1

CRN 156730-90-4

CMF C4 H12 O2 S Si

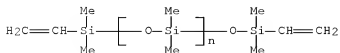


CM 2

CRN 59942-04-0

CMF (C2 H6 O Si)_n C8 H18 O Si2

CCI PMS

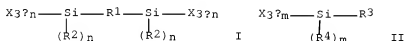


L82 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2003:377173 HCAPLUS [Full-text](#)

DN 138:371759
 TI Proton conductive membrane, its manufacture,
 and fuel cell using the membrane
 IN Nomura, Shigeki; Sugimoto, Toshiya; Nakamura,
 Masanori; Yamauti, Kenji
 PA Sekisui Chemical Co., Ltd., Japan
 SO PCT Int. Appl., 120 pp.
 CODEN: PIXXD2
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003041091	A1	20030515	WO 2002-JP11242	20021029 <--
	W: CA, CN, JP, KR, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
	CA 2433320	A1	20030515	CA 2002-2433320	20021029 <--
	EP 1441365	A1	20040728	EP 2002-802706	20021029 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
	JP 3679104	B2	20050803	JP 2003-543039	20021029 <--
	US 20040062970	A1	20040401	US 2003-450845	20031021 <--
	US 7214756	B2	20070508		
	HK 1063528	A1	20060317	HK 2004-106177	20040818 <--
	US 20070213495	A1	20070913	US 2007-727036	20070323 <--
PRAI	JP 2001-332977	A	20011030	<--	
	JP 2002-29781	A	20020206	<--	
	JP 2002-109493	A	20020411	<--	
	WO 2002-JP11242	W	20021029	<--	
	US 2003-450845	A3	20031021	<--	
OS	MARPAT 138:371759				
GI					



AB The membrane contains a C-containing organic-inorg. structure, crosslinked by Si-O units by covalent bonds, and an acid group cong. structure crosslinked by Si-O units by covalent bonds. Preferably, the composite structure is I, where X = a crosslinking -O- or OH, R1 = C1-50 side chain, R2 = ME, Et, PR, or Ph, and n = 0, 1, or 2; and the acid group. containing structure is II, where X = a crosslinking -O- or OH, R3 = sided chain containing ≥1 acid group, R4 = Me, Et, Pr, or Ph, and m = 0, 1, or 2; and the membrane may also contain glass fibers or ceramic whiskers. The membrane is manufactured by: mixing crosslink-able silyl group containing precursors of the 2 structures, preparing membrane of the mixture, and hydrolyzing and condensate the precursors. The acid group may also be formed, after the condensation, by using precursors having function groups that can be to form acid groups by post-processing.

IC ICM H01B0001-06
 ICS H01M0006-02; H01M0008-10; C08J0005-22;
 C08G0007-50

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST fuel cell proton conductive silicon contg polymer

membrane manuuf

- IT Glass fibers, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (comps. and manufacture of proton conductive
 membranes containing glass whiskers and glass fibers for fuel cell
 electrolytes)
- IT Electric conductors
 Fuel cell electrolytes
 (comps. and manufacture of proton conductive
 membranes for fuel cell electrolytes)
- IT Polysiloxanes, uses
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (di-Me, di-Ph, hydroxy-terminated, hydrolyzed, condensation products
 with hydrolyzed silyl compds.; comps. and manufacture of proton
 conductive membranes for fuel cell electrolytes)
- IT Polysiloxanes, uses
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (mercapto, hydrolyzed, condensation products with hydrolyzed silyl
 compds., oxidized; comps. and manufacture of proton
 conductive membranes for fuel cell electrolytes)
- IT 12056-51-8, Potassium titanium oxide (K2Ti6O13) 12400-04-3, Aluminum
 borate oxide (Al2(BO2)4O)
 RL: MOA (Modifier or additive use); USES (Uses)
 (comps. and manufacture of proton conductive
 membranes containing glass whiskers and glass fibers for fuel cell
 electrolytes)
- IT 4420-74-ODP, 3-Mercaptopropyltrimethoxysilane, hydrolyzed, condensation
 products with hydrolyzed silyl compds., oxidized 4420-74-ODP,
 3-Mercaptopropyltrimethoxysilane, hydrolyzed, condensed, oxidized
 7631-90-5DP, Sodium bisulfite, reaction products with hydrolyzed silyl
 compds. 28323-47-9DP, PSI 021, hydrolyzed, condensation products with
 hydrolyzed silyl compds. 31001-77-1DP, 3-Mercaptopropylmethyldimethoxysilane,
 hydrolyzed, condensed, oxidized 31692-79-2DP, DMS s12, hydrolyzed,
 condensation products with hydrolyzed silyl compds. 40372-72-3DP, SIB
 1825.0, hydrolyzed, condensation products with hydrolyzed silyl compds.,
 oxidized 51826-90-5DP, 3-Bromopropyltrimethoxysilane, hydrolyzed,
 condensed, reaction products with sodium bisulfite 52217-60-4DP,
 1,8-Bis(triethoxysilyl)octane, hydrolyzed, condensation products with
 hydrolyzed silyl compds. 56706-10-6DP, KBE 886B, hydrolyzed,
 condensation products with hydrolyzed silyl compds., oxidized
 70942-24-4DP, hydrolyzed, condensation products with hydrolyzed silyl
 compds. 87135-01-1DP, 1,6-Bis(trimethoxysilyl)hexane, hydrolyzed,
 condensation products with hydrolyzed silyl compds. 148229-61-2DP,
 hydrolyzed, condensation products with hydrolyzed silyl compds.
 161990-64-2DP, X-41-1805, hydrolyzed, condensation products with
 hydrolyzed silyl compds., oxidized 164849-42-7DP, X 40-2090, hydrolyzed,
 condensation products with hydrolyzed silyl compds. 469867-63-8DP,
 1,8-Bis(diethoxymethylsilyl)octane, hydrolyzed, condensation products with
 hydrolyzed silyl compds. 469867-63-8DP, 1,8-Bis(diethoxymethylsilyl)octane,
 hydrolyzed, condensation products with
 hydrolyzed silyl compds., oxidized 524729-75-7DP, hydrolyzed,
 condensation products with hydrolyzed silyl compds., oxidized
 524729-76-8DP, hydrolyzed, condensation products with hydrolyzed silyl
 compds., oxidized
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (comps. and manufacture of proton conductive
 membranes for fuel cell electrolytes)

IT 161000-64-2DP, X-41-1805, hydrolyzed, condensation products with hydrolyzed silyl compds., oxidized
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (comps. and manufacture of proton conductive membranes for fuel cell electrolytes)

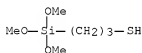
RN 161000-64-2 HCAPLUS

CN Silicic acid (H4SiO4), tetraethyl ester, polymer with 3-(trimethoxysilyl)-1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Agency Of Industrial Sc	2001			JP 200135509 A	
Creavis Ges Technologie	1999			EP 1017476 A1	HCAPLUS
Creavis Ges Technologie	1999			CZ 2000361 A3	
Creavis Ges Technologie	1999			NO 2000437 A	
Creavis Ges Technologie	1999			JP 2002516740 A	
Creavis Ges Technologie	1999			WO 9962620 A1	HCAPLUS
Dow Corning Toray Silic	1994			JP 06-49213 A	HCAPLUS
Dow Corning Toray Silic	1994			EP 581296 A2	HCAPLUS
National Institute Of A	2002			JP 2002309016 A	HCAPLUS

L82 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2003:260048 HCAPLUS Full-text

DN 138:274077

TI Proton-conducting membrane and its manufacture for fuel cell

IN Nakamura, Masanori; Nomura, Shigeaki; Goto, Yasushi

PA Sakisui Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003100316	A	20030404	JP 2001-289364	20010921 <--
PRAI	JP 2001-289364		20010921	<--	
AB	The membrane comprises (A) metal-O bond-containing tridimensional crosslinked structures (e.g., heat-curable alkoxysilanes), (B) fibers (e.g., glass fibers), and preferably (C) additives for H+ conductivity (e.g., phosphotungstic acid, silicotungstic acid, phosphomolybdic acid). The membrane is manufactured by (1) mixing liquid substances forming A and optionally C, (2) impregnating B with the mixture, and (3) curing the impregnated material by sol-gel reaction. The membrane has high resistance to heat and chems. and is suitable for a fuel cell operated at high temperature or a direct MeOH-type fuel cell.				
IC	ICM H01M0008-02				
	ICS C08G0077-02; C08G0079-00; C08J0005-24; C08K0003-00; C08K0007-14; C08L0027-12; C08L0083-02; H01B0001-06; H01B0013-00; H01M0008-10				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
ST	Section cross-reference(s): 38				
	proton conductor membrane fuel cell				
	electrolyte; alkoxysilane polymer heteropoly acid proton conducting membrane; glass fiber polysiloxane				
IT	proton conductor membrane				
IT	Glass fibers, uses				
	RL: DEV (Device component use); USES (Uses)				
	(APP 25, RBP 060, sheet, membrane component; heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)				
IT	Glass fibers, uses				
	RL: DEV (Device component use); USES (Uses)				
	(chopped, membrane component, RES 25; heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)				
IT	Synthetic polymeric fibers, uses				
	RL: DEV (Device component use); USES (Uses)				
	(fluoropolymers, sheet, membrane component; heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)				
IT	Fuel cell electrolytes				
	Sol-gel processing				
	(heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)				
IT	Polysiloxanes, uses				
	Silsequioxanes				
	RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)				
	(heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)				
IT	Heteropoly acids				
	RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)				
	(molybdophosphoric; heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)				
IT	Heteropoly acids				
	RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)				

(tungstophosphoric, membrane containing; heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)

IT Heteropoly acids

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(tungstosilicic, membrane containing; heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)

IT 25930-91-0P, Methyltriethoxysilane homopolymer 153315-80-1P
503065-09-6P 503065-10-9P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)

IT 11104-88-4, Molybdenum phosphorus hydroxide oxide 12067-99-1,
Phosphotungstic acid 55957-17-0

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(membrane containing; heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)

IT 503065-09-6P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(heat- and chemical resistant proton-conducting membrane and its manufacture for fuel cell)

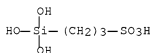
RN 503065-09-6 HCAPLUS

CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)-, polymer with
4,4,13,13-tetraethoxy-3,14-dioxo-4,13-disilaheptadecane (9CI) (CA INDEX NAME)

CM 1

CRN 70942-24-4

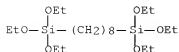
CMF C3 H10 O6 S Si



CM 2

CRN 52217-60-4

CMF C20 H46 O6 Si2



L82 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN
 AN 2003:242658 HCAPLUS Full-text
 DN 138:257917

TI Membrane-electrode laminate, its manufacturing method, and solid polymer fuel cell using the laminate

IN Nishikawa, Osamu; Nomura, Shigeki; Nakamura, Masanori;
 Sugimoto, Toshiya

PA Sekisui Chemical Co., Ltd., Japan

SO PCT Int. Appl., 75 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003026051	A1	20030327	WO 2002-JP9144	20020909 <--
	W: CA, CN, JP, KR, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
	JP 2003178770	A	20030627	JP 2002-377330	20010927 <--
	CA 2428131	A1	20030327	CA 2002-2428131	20020909 <--
	EP 1427043	A1	20040609	EP 2002-760815	20020909 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
	CN 1537340	A	20041013	CN 2002-802856	20020909 <--
	JP 4009593	B2	20071114	JP 2003-529561	20020909 <--
	KR 773635	B1	20071105	KR 2003-706329	20030509 <--
	US 20040053113	A1	20040318	US 2003-415891	20030909 <--
PRAI	JP 2001-275259	A	20010911	<--	
	JP 2001-298030	A	20010927	<--	
	JP 2001-303239	A	20010928	<--	
	WO 2002-JP9144	W	20020909	<--	

AB The laminate has a gas diffusion electrode bonded on both sides of a proton conductive membrane; where the binding part of the laminate contains a metal-O bond-containing tridimensionally crosslinked structure formed by a sol-gel reaction; and is prepared by applying a liquid comprising (1) a Si containing crosslinking monomer or (2) a Si containing crosslinking monomer and a noble metal catalyst supported carbon fine particles on at least 1 side of the membrane; pasting (1) a catalyst supported gas diffusion electrode or (2) a gas diffusion electrode on the liquid, and curing the liquid. Preferably, the tridimensionally crosslinked structure contains a proton conductive additive which is an inorg. acid.

IC ICM H01M0006-02

ICS H01M0006-10

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST fuel cell electrolyte proton conductive crosslinked

membrane laminate manuf

IT Fuel cell electrolytes

(manufacture of electrode-membrane laminates containing crosslinking

siloxane

monomers and inorg. acids for fuel cells)

IT 11099-06-2P, Polytetraethoxysilane 25930-91-0P,
 Polymethyltriethoxysilane 503065-09-6P 503065-10-9P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(manufacture of electrode-membrane laminates containing crosslinking

siloxane

monomers and inorg. acids for fuel cells)

IT 503065-09-6P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material

use); PREP (Preparation); USES (Uses)

(manufacture of electrode-membrane laminates containing crosslinking siloxane

monomers and inorg. acids for fuel cells)

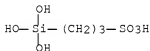
RN 503065-09-6 HCAPLUS

CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)-, polymer with 4,4,13,13-tetraethoxy-3,14-dioxo-4,13-disilaheptadecane (9CI) (CA INDEX NAME)

CM 1

CRN 70942-24-4

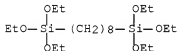
CMF C3 H10 O6 S Si



CM 2

CRN 52217-60-4

CMF C20 H46 O6 Si2



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Agency Of Industrial Sci	2001			JJP 200135509 A	
Daiso Co Ltd	1998			JJP 10-204172 A	HCAPLUS
Mitsubishi Electric Cor	2001			JJP 200176734 A	

L82 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2003:200649 HCAPLUS Full-text

DN 139:223060

TI Fabrication of transparent conductive film using patterned polysiloxane undercoating layer

IN Okubo, Toru; Kameshima, Hisamitsu

PA Toppan Printing Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----
PI JP 2003077341	A	20030314	JP 2001-264150	20010831 <--

PRAI JP 2001-264150 20010831 <--
 AB Title transparent conductive film is fabricated by forming on a substrate (A) a patterned polysiloxane undercoating layer and then a conductive layer of microparticles that are (partially) coated with metals and bridged to neighboring ones. Thus, a glass substrate was coated with a composition comprising tetraethoxysilane 5.21 and 0.1 N hydrochloric acid 3.38 g, stamped with an octadecyltrichlorosilane solution, immersed in a 3-mercaptopropyltrimethoxysilane solution, dipped in a suspension containing H₂AuCl₄·4H₂O and sodium citrate, and finally reduced with a solution containing H₂AuCl₄·4H₂O and NH₂OH·HCl to give a conductive film of resistivity 12 Ω/square and light transmittance 77%.

IC ICM H01B0005-14
 ICS B05D0005-12; B05D0007-24; H01B0013-00; C03C0017-06

CC 42-10 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 74, 76

IT 161000-64-2P, 3-Mercaptopropyltrimethoxysilane-tetraethoxysilane copolymer
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (metal-bondable undercoating; fabrication of transparent conductive film using patterned polysiloxane undercoating layer)

IT 161000-64-2P, 3-Mercaptopropyltrimethoxysilane-tetraethoxysilane copolymer
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (metal-bondable undercoating; fabrication of transparent conductive film using patterned polysiloxane undercoating layer)

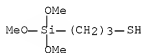
RN 161000-64-2 HCAPLUS

CN Silicic acid (H₄SiO₄), tetraethyl ester, polymer with 3-(trimethoxysilyl)-1-propanethiol (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



CM 2

CRN 78-10-4

CMF C8 H20 O4 Si



- L82 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN
 AN 2001:777683 HCAPLUS Full-text
 DN 136:103078
 TI Proton conductivity in siloxane and ormosil ionomers prepared using mild sulfonation methodologies
 AU Slade, Robert C. T.; Varcoe, John R.
 CS Department of Chemistry, University of Surrey, Guildford, GU2 7XH, UK
 SO Solid State Ionics (2001), 145(1-4), 127-133
 CODEN: SSIOD3; ISSN: 0167-2738
 PB Elsevier Science B.V.
 DT Journal
 LA English
 AB Mild sulfonation procedures have been developed for preparation of proton (H+) conducting siloxane and ormosil ionomers. Method A involves mild oxidation (with 3-chloroperoxybenzoic acid) of mercapto (-SH) sidechains in siloxane polymers to yield sulfonic acid (-SO3H) groups. Method B involves the formation of copolymers of a methacrylate-containing siloxane and a novel protected styrene sulfonated precursor (NISS, 1,2,3,4-tetrahydro-1-naphthylideneamino p-styrenesulfonate), with subsequent deprotection by UV irradiation and acidification. Proton conductivities of materials from these two routes have been studied as functions of temperature and of relative humidity. Conductivities follow an empirical Arrhenius law and increase markedly in moist atmospheres. Conductivities at elevated temps. are at least as high as those for Nafion membranes under similar conditions.
- CC 37-5 (Plastics Manufacture and Processing)
 Section cross-reference(s): 73
- ST polysiloxane silsesquioxane sulfonic ionomer proton cond
 humidity
- IT Silsesquioxanes
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (ionomers; proton conductivity in siloxane and ormosil ionomers prepared using mild sulfonation methodologies)
- IT Silsesquioxanes
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (polysiloxane-, ionomers; proton conductivity in siloxane and ormosil ionomers prepared using mild sulfonation methodologies)
- IT Ionomers
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
 (proton conductivity in siloxane and ormosil ionomers prepared using mild sulfonation methodologies)
- IT Ionic conductivity
 (proton; proton conductivity in siloxane and ormosil ionomers prepared using mild sulfonation methodologies)
- IT Polysiloxanes, preparation
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (silsesquioxane-, ionomers; proton conductivity in siloxane and ormosil ionomers prepared using mild sulfonation methodologies)
- IT 937-14-4, 3-Chloroperoxybenzoic acid
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (oxidation agent; proton conductivity in siloxane and ormosil ionomers prepared using mild sulfonation methodologies)
- IT 36586-43-2DP, Diethoxydimethylsilane-3-

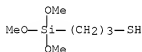
(mercaptopropyl)trimethoxysilane copolymer, oxidized 256473-64-6DP
 , 3-(Mercaptopropyl)methyldimethoxysilane-3-(mercaptopropyl)trimethoxysilane copolymer, oxidized 271778-35-9DP, hydrolyzed
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(proton conductivity in siloxane and ormosil ionomers prepared using mild sulfonation methodologies)
 IT 30586-48-2DP, Diethoxydimethylsilane-3-(mercaptopropyl)trimethoxysilane copolymer, oxidized 256473-64-6DP
 , 3-(Mercaptopropyl)methyldimethoxysilane-3-(mercaptopropyl)trimethoxysilane copolymer, oxidized
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (proton conductivity in siloxane and ormosil ionomers prepared using mild sulfonation methodologies)
 RN 30586-48-2 HCAPLUS
 CN 1-Propanethiol, 3-(trimethoxysilyl)-, polymer with diethoxydimethylsilane (8CI, 9CI) (CA INDEX NAME)

CM 1

CRN 4420-74-0

CMF C6 H16 O3 S Si



CM 2

CRN 78-62-6

CMF C6 H16 O2 Si



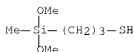
RN 256473-64-0 HCAPLUS

CN 1-Propanethiol, 3-(dimethoxymethylsilyl)-, polymer with 3-(trimethoxysilyl)-1-propanethiol (9CI) (CA INDEX NAME)

CM 1

CRN 31001-77-1

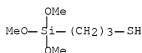
CMF C6 H16 O2 S Si



CM 2

CRN 4420-74-0

CMF C6 H16 O3 S Si



RETABLE

Referenced Author (RAU)	Year	VOL	PG (RFP) (RVL) (RFG)	Referenced Work (RNK)	Referenced File
Apperley, D	2000	10	1849	J Mater Chem	HCAPLUS
Brown, S	1995	2	111	Comprehensive Organo	
Deng, Q	1998	68	1747	J Appl Polym Sci	HCAPLUS
Evans, P	1999	9	13015	J Mater Chem	HCAPLUS
Flint, S	1997	97	1299	Solid State Ionics	HCAPLUS
Gautier-Luneau, I	1992	137	1161	Electrochim Acta	
Gray, F	1991			Solid Polymer Electr	
Guo, Q	1999	154	1175	J Membr Sci	HCAPLUS
Halim, J	1994	139	11303	Electrochim Acta	HCAPLUS
Macdonald, J	1987			Impedance Spectroscop	
Palei, B	1998	161	1118	J Appl Chem	
Pineri, M	1990		1214	Recent Developments	
Pourcelly, G	1992		1294	Proton Conductors: S	HCAPLUS
Sanchez, J	1992	14	99	Polym Adv Technol	
Shirai, M	1993	5	98	J Chem Mater	HCAPLUS
Shirai, M	1993	13	1133	J Mater Chem	HCAPLUS
Uosaki, K	1990	1287	1163	J Electroanal Chem	HCAPLUS
Wakizoe, M	1995	140	1335	Electrochim Acta	HCAPLUS
Wycisk, R	1996	1119	1155	J Membr Sci	HCAPLUS
Zoppi, R	1998	1445	139	J Electroanal Chem	HCAPLUS

L82 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 1994:436899 HCAPLUS [Full-text](#)

DN 121:36889

OREF 121:6815a,6818a

TI Sulfo group-containing siloxanes and their preparation and use

IN Panster, Peter; Kleinschmit, Peter

PA Degussa AG, Germany

SO Ger., 9 pp.

CODEN: GWXXAW

DT Patent

LA German

FAN.CNT 1

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

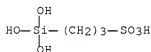
```

-----
PI  DE 4223539      C1  19931125      DE 1992-4223539      19920717 <--
EP 582811          A1  19940216      EP 1993-109931      19930622 <--
EP 582811          B1  19970813
      R:  AT, BE, CH, DE, DK, ES, FR, GB, IE, IT, LI, LU, NL, PT, SE
AT 156847          T   19970815      AT 1993-109931      19930622 <--
ES 2107589         T3  19971201      ES 1993-109931      19930622 <--
US 5354831         A   19941011      US 1993-85960       19930706 <--
CA 2100732         A1  19940118      CA 1993-2100732     19930716 <--
CA 2100732         C   19991109
JP 06207021        A   19940726      JP 1993-176600      19930716 <--
PRAI DE 1992-4223539 A   19920717 <--
AB  The title siloxanes, containing sulfo groups attached to Si by divalent
hydrocarbyl groups and useful as catalysts, ion exchangers, etc., are prepared
in the form of particles having diameter 0.01-3.0 mm, sp. surface 0.01-1200
m2/g, specific pore volume 0.01-6.0 mL/g, and bulk d. 50-1000 g/L. A
crosslinked particulate siloxane was prepared from (HO)3Si(CH2)3SO3H and
(Eto)4Si.
IC  ICM C08G0077-28
ICS C08G0077-06; C08G0077-32; C08L0083-08; C08J0003-14; B01J0021-18;
C08G0077-04; B01J0031-10
ICA C08J0005-20
CC  37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 35
IT  154619-15-5P 154619-16-6P 154619-17-7P
156219-01-1P
RL: PREP (Preparation)
(preparation of particulate, as catalysts and ion exchangers)
IT  154619-15-5P 154619-16-6P 154619-17-7P
RL: PREP (Preparation)
(preparation of particulate, as catalysts and ion exchangers)
RN  154619-15-5 HCAPLUS
CN  1-Propanesulfonic acid, 3-(trihydroxysilyl)-, polymer with silicic acid
(H4SiO4) tetraethyl ester (CA INDEX NAME)

CM  1

CRN  70942-24-4
CMF  C3 H10 O6 S Si

```



```

CM  2

CRN  78-10-4
CMF  C8 H20 O4 Si

```



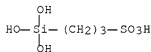
RN 154619-16-6 HCAPLUS

CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)-, polymer with diethoxydimethylsilane and silicic acid (H₄SiO₄) tetraethyl ester (9CI) (CA INDEX NAME)

CM 1

CRN 70942-24-4

CMF C3 H10 O6 S Si



CM 2

CRN 78-62-6

CMF C6 H16 O2 Si



CM 3

CRN 78-10-4

CMF C8 H20 O4 Si

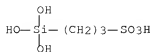


RN 154619-17-7 HCAPLUS

CN 1-Propanesulfonic acid, 3-(trihydroxysilyl)-, polymer with silicic acid (H₄SiO₄) tetraethyl ester and trimethoxypropylsilane (9CI) (CA INDEX NAME)

CM 1

CRN 70942-24-4
CMF C3 H10 O6 S Si



CM 2

CRN 1067-25-0
CMF C6 H16 O3 Si



CM 3

CRN 78-10-4
CMF C8 H20 O4 Si



=> => d bib abs hitind hitstr retable

L93 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2008 ACS on STN

AN 2001:174212 HCAPLUS [Full-text](#)

DN 134:226263

TI Transparent and electrically conductive films for use on display devices as electromagnetic shield layers and compositions for their formation

IN Koyanagi, Tsugio; Komatsu, Michio

PA Catalysts and Chemicals Industries Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

PI JP 2001064540 A 20010313 JP 1999-242967 19990830 <--
 PRAI JP 1999-242967 19990830 <--

AB The title compns. comprise: (A) fine metal particles, e.g., Ag, (B) sulfur compds., e.g., CS₂, organic mercapto compds., mercapto silanes or/and their hydrolytic polymers, (C) polar solvent, and (D) metal oxides as matrix, e.g., silica and zirconia, and optionally organic stabilizers, where the weight ratio of B:A is 0.005-0.5. The title films with low surface resistivity are obtained by spin-coating the composition on a transparent substrate such as a glass panel for use in CRTs.

IC ICM C09D0001-00
 ICS B32B0007-02; C09D0005-24; C09D0183-08; G02B0001-11; G02B0001-10; H01B0005-14; H05K0009-00

CC 57-4 (Ceramics)
 Section cross-reference(s): 42, 76

ST silver particle transparent elec conductive coating display device; electromagnetic shield coating display device; sulfur compd electromagnetic shield coating display device

IT Thiols (organic), uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (dispersing agent; transparent and elec. conductive films for use on display devices as electromagnetic shield layers and compns. for formation)

IT Coating materials
 (elec. conductive, transparent; transparent and elec. conductive films for use on display devices as electromagnetic shield layers and compns. for formation)

IT Alloys, uses
 Metals, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (elec. conductor; transparent and elec. conductive films for use on display devices as electromagnetic shield layers and compns. for formation)

IT Electric conductors
 (metal powders; transparent and elec. conductive films for use on display devices as electromagnetic shield layers and compns. for formation)

IT Glass, miscellaneous
 RL: MSC (Miscellaneous)
 (panel, substrate; transparent and elec. conductive films for use on display devices as electromagnetic shield layers and compns. for formation)

IT Cathode ray tubes
 Dispersing agents
 Electromagnetic shields
 Polar solvents
 (transparent and elec. conductive films for use on display devices as electromagnetic shield layers and compns. for formation)

IT 75-15-0, Carbon disulfide, uses 112-55-0, 1-Mercaptododecane 2917-26-2, 1-Mercaptohexadecane 29295-83-8 329688-17-7
 RL: MOA (Modifier or additive use); USES (Uses)
 (dispersing agent; transparent and elec. conductive films for use on display devices as electromagnetic shield layers and compns. for formation)

IT 7440-18-8, Ruthenium, uses 7440-44-0, Carbon, uses 7440-57-5, Gold, uses 12669-05-5 12677-39-3 37197-23-2 54340-10-2 75022-54-7 119281-30-0
 RL: MOA (Modifier or additive use); USES (Uses)
 (elec. conductor; transparent and elec. conductive films for use on display devices as electromagnetic shield layers and compns. for formation)

IT 7631-86-9, Silica, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (matrix; transparent and elec. conductive films for use on
 display devices as electromagnetic shield layers and compns. for
 formation)

IT 78-83-1, Isobutanol, uses 1569-02-4, 1-Ethoxy-2-propanol
 RL: NUU (Other use, unclassified); USES (Uses)
 (polar solvent; transparent and elec. conductive films for
 use on display devices as electromagnetic shield layers and compns. for
 formation)

IT 64-17-5, Ethanol, uses 75-65-0, tert-Butanol, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (solvents; transparent and elec. conductive films for use on
 display devices as electromagnetic shield layers and compns. for
 formation)

IT 29295-83-8
 RL: MOA (Modifier or additive use); USES (Uses)
 (dispersing agent; transparent and elec. conductive films for
 use on display devices as electromagnetic shield layers and compns. for
 formation)

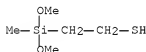
RN 29295-83-8 HCAPLUS

CN Ethanethiol, 2-(dimethoxymethylsilyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 14857-98-8

CMF C5 H14 O2 S Si



=> d his

(FILE 'HOME' ENTERED AT 11:33:23 ON 28 MAY 2008)
 SET COST OFF

FILE 'HCAPLUS' ENTERED AT 11:33:44 ON 28 MAY 2008

L1 1 S US20060035129/PN OR (US2005-540564# OR WO2004-JP1179 OR JP200
 E NOMURA/AU
 E NOMURA S/AU

L2 486 S E3-E7,E59
 E NOMURA NAME/AU

L3 26 S E4
 E SHIGEKI/AU

L4 1 S E49
 E YAMAUCHI/AU
 E YAMAUCHI K/AU

L5 321 S E3,E4

L6 133 S E80,E75,E76
 E YAMAUCHI NAME/AU

L7 44 S E4
 E KENJI/AU

L8 3 S E3

```

E KENJI Y/AU
E KEN JI/AU
E KOMA/AU
L9      30 S E48,E56
E SATOSHI/AU
L10     2 S E3
L11     10 S E70
E SUGIMOTO/AU
L12     14 S E3
E SUGIMOTO T/AU
L13     395 S E3,E4
E SUGIMOTO TOSH/AU
L14     55 S E30,E31
E SUGIMOTO NAME/AU
L15     48 S E4
E TOSHIYA/AU
E HASEGAWA/AU
L16     5 S E3
E HASEGAWA T/AU
L17     1037 S E3-E5,E24
E HASEGAWA NAME/AU
L18     81 S E4
E TAIRA/AU
L19     1 S E3
E TAIRA H/AU
L20     37 S E3
E TAIRA NAME/AU
L21     3 S E4
E SEKISUI/CO
E E21+ALL
L22     19953 S E2+RT OR E2-E34/PA,CS OR SEKISUI?/CO,PA,CS
SEL RN L1

```

FILE 'REGISTRY' ENTERED AT 11:40:20 ON 28 MAY 2008

```

L23     16 S E1-E16
L24     9 S L23 AND (SI AND S)/ELS
L25     7960 S (SI AND S)/ELS AND PMS/CI
L26     STR
L27     STR L26
L28     50 S L27 CSS SAM SUB=L25
L29     STR L27
L30     3458 S L25 NOT (N OR P)/ELS
L31     2247 S L30 AND NR>=1
L32     1211 S L30 NOT L31
L33     50 S L29 CSS SAM SUB=L25
L34     1331 S L29 CSS FUL SUB=L25
SAV TEMP L34 RINER540A/A
L35     814 S L34 AND L30
L36     345 S L35 AND L31
L37     469 S L35 NOT L36
L38     416 S L37 NOT (C2H4O OR C3H6O OR C4H8O)
L39     212 S L38 AND PROPENOIC
L40     204 S L38 NOT L39
L41     17 S L40 AND UNSPECIFIED
L42     187 S L40 NOT L41
L43     30 S L42 AND 1/NC
L44     28 S L43 NOT (" (C4H10OSSI)NC16H34O11SI4" OR C3F6O)
L45     157 S L42 NOT L43
L46     74 S L45 AND NC>=3
L47     62 S L46 NOT (TI OR AL OR ZR OR SN)/ELS

```

```

L48      17 S L47 AND (C2F4 OR C10H18O4 OR O2SI OR C4H5CL OR C7H12O6SSI OR
L49      45 S L47 NOT L48
L50      3 S L49 AND (B/ELS OR C11H20O2 OR C20H24F22O8SI2)
L51      42 S L49 NOT L50
L52      83 S L45 NOT L46
L53      22 S L52 AND (C9H16O6SSI OR C8H12O8SI OR C3H6 OR C4H6O OR C2H3CL O
L54      61 S L52 NOT L53
L55      131 S L24,L44,L51,L54
          SAV TEMP L55 RINER540B/A

```

FILE 'HCAPLUS' ENTERED AT 12:18:00 ON 28 MAY 2008

```

L56      360 S L55
L57      63 S L56 AND PY<=2003 NOT P/DT
L58      144 S L56 AND (PD<=20030206 OR PRD<=20030206 OR AD<=20030206) AND P
L59      72 S L56 AND PY<=2004 NOT P/DT
L60      164 S L56 AND (PD<=20040205 OR PRD<=20040205 OR AD<=20040205) AND P
L61      29 S L59,L60 NOT L57,L58
L62      236 S L57-L61
L63      6 S L62 AND (C08J005-20 OR C08J005-22)/IPC,IC,ICM,ICS
L64      3 S L62 AND (C08J005 OR C08J005)/EPC
L65      15 S L62 AND (C08J005 OR C08J005)/IPC,IC,ICM,ICS
L66      24 S L62 AND C08G077-28/IPC,IC,ICM,ICS,EPC
L67      12 S L62 AND H01M/IPC,IC,ICM,ICS,EPC
L68      14 S L62 AND H01B/IPC,IC,ICM,ICS,EPC
L69      6 S L62 AND PROTON(L)CONDUCT?(L)MEMBRAN?
L70      5 S L62 AND PROTON(L)CONDUCT?(L)FILM?
          E FUEL CELL/CT
L71      24573 S E4+OLD,NT OR E5+OLD,NT OR E6+OLD,NT OR E9+OLD,NT OR E12+OLD,N
L72      66582 S E15+OLD,NT
L73      25126 S E16-E32
          E E10+ALL
L74      11 S L62 AND L71-L73
L75      41 S L63-L70,L74
L76      9 S L1-L22 AND L62
L77      41 S L75,L76
L78      10 S L77 AND PROTON?(L)CONDUCT?
L79      11 S L76,L78
L80      30 S L77 NOT L79
          SEL AN DN 3 5 6 26
L81      4 S L80 AND E1-E12
L82      15 S L79,L81

```

FILE 'REGISTRY' ENTERED AT 12:30:40 ON 28 MAY 2008

FILE 'HCAPLUS' ENTERED AT 12:30:50 ON 28 MAY 2008

```

L83      221 S L62,L77 NOT L82
L84      17 S L83 AND ?CONDUCT?
          E CONDUCTIVITY/CT
L85      22291 S E3-E8
          E E3+ALL
L86      279047 S E2+OLD,NT OR E3+OLD,NT
          E E2+ALL
          E E24+ALL
L87      1869 S E7+OLD
          E CONDUCTIVITY/CT
          E E3+ALL
          E E3+ALL
L88      232707 S E6+OLD,NT
L89      384858 S E5+OLD,NT
L90      507397 S E54+OLD,NT OR E55+OLD,NT OR E56+OLD,NT OR E57+OLD,NT OR E58+O

```

```
L91      4 S L83 AND L85-L90
L92     20 S L84, L91
          SEL AN 9
L93      1 S L92 AND E1-E2
```

=>